

# Installing Natural under z/OS

This document describes step by step how to install Natural under the operating system z/OS using Adabas system files.

The following topics are covered:

- Prerequisites
- Installation Tape for Natural under z/OS
- Transferring a License Key File from PC to Host with FTP
- Installation Procedure for Natural under z/OS
- Installation Verification for Natural under z/OS

See also *z/OS Environment* in the *Natural Operations* documentation.

For installation-related information on Unicode and code page support, refer to *Configuration and Administration of the Unicode/Code Page Environment* in the *Unicode and Code Page Support* documentation.

**Notation vrs or vr:** If used in the following document, the notation *vrs* or *vr* stands for the relevant version, release, system maintenance level numbers. For further information on product versions, see Version in the *Glossary*.

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## Prerequisites

- A supported version of the z/OS operating system must be installed. For the supported versions of the operating systems, refer to *Operating/Teleprocessing Systems Required* in the current *Natural Release Notes* for Mainframes.
- A supported version of Adabas must be installed. For the supported versions, refer to *Natural and Other Software AG Products* in the current *Natural Release Notes* for Mainframes.
- As a rule of thumb, each major Software AG product requires approximately 20 MB space in the Adabas database to store the Natural objects supplied by Software AG.

## Installation Tape for Natural under z/OS

The installation tape contains the datasets listed in the table below. The sequence of the datasets and the number of library blocks needed are shown in the *Report of Tape Creation* which accompanies the installation tape.

Dataset Name	Contents
NATvrs.LICS	Natural License Key File. For further information on license key file, license key file installation, product license check and product license check FAQs, see <i>Licensing Natural</i> .  If a license key file is supplied as an e-mail attachment, see <i>Transferring the License Key File from PC to Host with FTP</i> .
NATvrs.SYSF	Empty Natural system file
NATvrs.ERRN	Natural error messages
NATvrs.LOAD	Natural load modules
NATvrs.OBJS	Natural object modules
NATvrs.SRCE	Natural source modules and macros
NATvrs.JOBS	Example installation jobs
NATvrs.LDEL	Instructions to delete Natural system objects of Version 4.1
NATvrs.INPL	Natural system objects
NATvrs.EXPL	Natural example objects

## Copying the Tape Contents to a z/OS Disk

If you are using SMA, refer to the *System Maintenance Aid* documentation (included in the current edition of the Natural documentation CD).

If you are *not* using SMA, follow the instructions below.

This section explains how to:

- Copy dataset COPY.JOB from tape to disk.
- Modify this dataset to conform to your local naming conventions.

The JCL in this dataset is then used to copy all datasets from tape to disk.

If the datasets for more than one product are delivered on the tape, the dataset COPY.JOB contains the JCL to unload the datasets for all delivered products from the tape to your disk.

After that, you will have to perform the individual install procedure for each component.

- Step 1 - Copy Dataset COPY.JOB from Tape to Disk
- Step 2 - Modify COPY.JOB on Your Disk
- Step 3 - Submit COPY.JOB

## Step 1 - Copy Dataset COPY.JOB from Tape to Disk

The dataset COPY . JOB (Label 2) contains the JCL to unload all other existing datasets from tape to disk. To unload COPY . JOB, use the following sample JCL:

```
//SAGTAPE JOB SAG,CLASS=1,MSGCLASS=X
//* -----
//COPY EXEC PGM=IEBGENER
//SYSUT1 DD DSN=COPY.JOB,
// DISP=(OLD,PASS),
// UNIT=(CASS,,DEFER),
// VOL=(,RETAIN,SER=tape-volume),
// LABEL=(2,SL)
//SYSUT2 DD DSN=hilev.COPY.JOB,
// DISP=(NEW,CATLG,DELETE),
// UNIT=3390,VOL=SER=volume,
// SPACE=(TRK,(1,1),RLSE),
// DCB=*.SYSUT1
//SYSPRINT DD SYSOUT=*
//SYSIN DD DUMMY
//
```

where:

*hilev* is a valid high level qualifier

*tape-volume* is the tape volume name, for example: T12345

*volume* is the disk volume name

## Step 2 - Modify COPY.JOB on Your Disk

Modify the COPY . JOB on your disk to conform to your local naming conventions and set the disk space parameters before submitting this job:

- Set HILEV to a valid high level qualifier.
- Set LOCATION to a storage location.
- Set EXPDT to a valid expiration date.

## Step 3 - Submit COPY.JOB

Submit COPY . JOB to unload all other datasets from the tape to your disk.

# Transferring a License Key File from PC to Host with FTP

If a license key file is supplied as an e-mail attachment, you must transfer the attached license key file `natvr.xml` from the PC to the mainframe, using native FTP commands.



### Warning:

**Using utilities instead of native FTP commands for the license key file transfer may corrupt the license key and thus prevent Natural from execution later on. This applies for example to file transfer based on 3270 terminal emulations that do not provide a true binary file transfer, but convert specific characters.**

To transfer a license key file from the PC to the mainframe, perform the following steps:

1. Save the product license key file e-mail attachment on your PC hard disk.
2. Open a command prompt window. In the command prompt window, change to the directory where you saved the product license key file.
3. Start an FTP session for communication with the z/OS host:

```
ftp host-name
```

Where *host-name* is the name of the z/OS host.

4. Enter your z/OS host login ID and password.
5. Once the FTP session has been established, specify the z/OS file system and dataset prefix for the license key file:

```
ftp>cd 'hilev'
```

Switch to binary data mode (the license key file must retain its ASCII format during the transfer):

```
ftp>binary
```

6. Specify that the dataset for the license key file must be written with RECFM=FB and LRECL=80.

```
ftp>quote site RECFM=FB LRECL=80 BLKSIZE=4000
```

**Note:**

RECFM=F is also supported for product license key files.

7. Copy the license key file as a dataset on the z/OS system.

```
ftp>put natvr.xml NATvrs.LICS
```

This command will create a dataset called *hilev.NATvrs.LICS*.

If you requested a prefix of NATURAL, the dataset name would be: *NATURAL.NATvrs.LICS*.

The dataset will have RECFM=FB, LRECL=80, and the license key information stored in the dataset will be in ASCII format.

8. Stop your FTP session by entering:

```
ftp>quit
```

## Installation Procedure for Natural under z/OS

### Step 1: Convert and Assemble the License Key File

Using PROGRAM NATLICAM, convert dataset *hilev.NATvrs.LICS* into an Assembler input file.

Assemble/link into a linkable module. This module is linked (Job I060) to the Natural nucleus.

- (Job I007, Steps 0101, 0102 and 0104)

Job I007, Step 0101	Allocate temporary dataset for license key module (NATLIC)
Job I007, Step 0102	Convert license key file (NATvrs.LICS).
Job I007, Step 0104	Assemble and link license key module (NATLIC).

## Step 2: Copy Natural Modules to an APF Library

- (Job I009, Step 1200, 1210, 1220, 1250)

Link the following Natural modules to an Authorized Program Facility (APF) library:

NATGBP42	Required if you want to install a global buffer pool.
NATASM42	<p>Required if you want to install an Authorized Services Manager (ASM).</p> <p>You must use the ASM in the following cases:</p> <ul style="list-style-type: none"> <li>● The Natural profile parameter BPPROP is set to PLEX or GLOBAL or GPLEX (buffer pool propagation is used).</li> <li>● Natural global buffer pools are allocated in system key; see <i>Installing the Natural GBP Operating Program</i> in the <i>Operations</i> documentation.</li> <li>● Natural under CICS is used in a Parallel Sysplex (SIP function is required).</li> <li>● Natural under IMS TM is used in terminal-oriented, non-conversational mode (SIP function is required).</li> <li>● Natural under IMS TM is used, with the Accounting function writing SMF records.</li> </ul> <p>See also <i>Authorized Services Manager under z/OS</i> in the <i>Operations</i> documentation.</p>
NATRSM42	<p>Required if you want to install a Natural Roll Server.</p> <p>You must use the RSM in the following cases:</p> <ul style="list-style-type: none"> <li>● The RPC Server Front-End is used.</li> <li>● Natural under IMS TM runs in a Parallel Sysplex environment.</li> <li>● Natural under CICS runs in a Parallel Sysplex or CICSplex environment.</li> </ul> <p>See also <i>Natural Roll Server Operation</i> in the <i>Operations</i> documentation.</p>
RPC Server Front-End	<p>Required if you want to use impersonation with the Natural Remote Procedure Call (RPC).</p> <p><b>If you use SMA:</b> Define the name of the RPC server front-end in the parameter NAT-RPC-FRONT.</p> <p><b>If you do not use SMA:</b> The name of the RPC server front-end is freely selectable and is specified in the link-edit step of Job I009, Step 1250.</p> <p>It is recommended to link the RPC server front-end into an APF-authorized LINKLIST library. This eliminates the need to provide the whole STEPLIB concatenation in the execution JCL of the Natural server APF-authorized. In this case, you have to issue the MVS MODIFY command F LLA, REFRESH after the link edit.</p>

### Step 3: Create and Start the Global Buffer Pool

- (Job I015, Steps 0100, 0101, 0102, 0104)

Step	Creates job	Function
0100	GBNASTRT	Start Natural global buffer pool.
0101	GBNASTOP	Stop Natural global buffer pool.
0102	GBEDSTRT	Start editor global buffer pool.
0104	GBEDSTOP	Stop editor global buffer pool.

These steps are only required if you wish to use a global buffer pool.

Create and start the jobs GBNASTRT and GBEDSTRT before using Natural.

For further information on the global buffer pool, see *Natural Global Buffer Pool* in the *Natural Operations* documentation.

Installation of the Authorized Services Manager is mandatory if the z/OS parameter `ALLOWUSERKEYCSA(NO)` applies by default or has explicitly been specified in `SYS1.PARMLIB(DIAGxx)`,

### Step 4: Load the FNAT System File

- (Job I050, Step 0100)

If you are installing into an existing Natural 4.1 FNAT file, skip this step.

Load the empty Natural system file (dataset `NATvrs.SYSF`) using the ADALOD utility.

This file will contain all Natural objects supplied by Software AG. Its size depends on the number of products to be installed later. As a rule of thumb, 20 MB can be assumed for each major Software AG product.

The following ADALOD parameters must not be altered:

```
ISNREUSE=YES
```

To avoid Natural errors NAT9988 and NAT7397 after reorganization of the FNAT system file using ADAULD/ADALOD, the parameter USERISN should be set to YES.

The file number *fnat* of the FNAT system file can be chosen as described under Natural profile parameter FNAT in the *Natural Parameter Reference* documentation.

### Step 5: Load the FUSER System File

- (Job I050, Step 0101)

You have the following options:

1. You can use an existing Version 4.1 FUSER file, then you can skip this step.
2. You can use a new FUSER file for Version 4.2.
3. You can use an existing Version 4.1 FUSER file to be shared by Versions 4.1 and 4.2.
4. You can use an existing Version 4.1 FUSER file to be used by Version 4.2 only.

### **Use a New Version 4.2 FUSER System File - First-Time Installation**

For the use of a new and empty FUSER system file for Natural Version 4.2, no additional system-file-related actions are necessary.

If you do *not* want to share the FUSER system file, proceed as follows:

Load the empty Natural user file contained in dataset NATVRS.SYSF using the ADALOD utility.

In this file, all user-written Natural programs are stored.

The following ADALOD parameters *must not* be altered:

```
ISNREUSE=YES
```

The file number *fuser* of the FUSER system file can be chosen as described under Natural profile parameter FUSER in the Natural *Parameter Reference* documentation.

### **Reuse an Existing Version 4.1 FUSER System File - Migration from Natural Version 4.1**

If you want to use the existing Natural Version 4.1 FUSER system file and you do not want to share the FUSER system file, skip this step.

### **Using a Version 4.1 FUSER File to be Shared by Natural Versions 4.1 and 4.2**

If you use an existing Natural Version 4.1 FUSER system file to be shared by Natural Versions 4.1 and 4.2, you must upgrade your Natural Version 4.1 installation to Version 4.1.4.

Natural Version 4.1.4 Service Pack I003 or a subsequent Service Pack is required. Service Pack I003 and all subsequent Service Packs contain all the necessary Version 4.1 based solutions for Natural Version 4.2.

### **User Application Programming Interfaces USR\* in Library SYSEXT**

The USR\* programs from the delivered library SYSEXT run in a special mode. As a result, the USR\* programs do not need to set further steplib to execute related objects for processing. This reduces the impact on the Natural buffer pool search logic and improves the performance significantly if user exits are used extensively within user written applications.

It is necessary that the user exits are cataloged with Natural Version 4.2. This implies that the user exits cannot be executed with Natural Version 4.1.



## Use of USR\* Programs

Usually, the access of USR\* programs by an application requires that the user application programming interfaces be copied from library SYSEXT to either the application libraries on the FUSER system file or to library SYSTEM on the FUSER system file or to library SYSTEM on the FNAT system file, respectively, or any other library which is defined as steplib for the application. Library SYSEXT can also be used as steplib. Due to the fact that the delivered user application programming interfaces will always be cataloged with the latest Natural version, we recommend that the user application programming interfaces should reside on the FNAT system file. This will ensure that the right version is executed and will separate user written applications from Software AG modules.

If applications which call user application programming interfaces should run with both Natural Version 4.1 and Natural Version 4.2, it must be made sure that the user application programming interfaces delivered with the corresponding Natural version are used.

The following scenarios may be considered:

### Using a Version 4.1 FUSER File for Natural Version 4.1 and 4.2

If the same FUSER system file shall be used in a Natural Version 4.1 and Version 4.2 environment in parallel the following steps are recommended:

- Remove all USR\* modules you have copied from library SYSEXT into application libraries on your FUSER system file.
- In both environments, copy the used USR\* modules from library SYSEXT to library SYSTEM on the corresponding FNAT system file.
- Alternatively, the USR\* modules can be moved to another system library on FNAT which then must be defined as steplib, or library SYSEXT can be used as steplib for the applications. Then automatically in both environments the right versions of the user application programming interfaces are executed.

### Using a Version 4.1 FUSER File for Natural Version 4.2 only

If you want to use the existing Natural Version 4.1 FUSER system file and you do not want to share the FUSER system file, then it is still possible to replace all USR\* modules you have copied from library SYSEXT into application libraries with the new USR\* objects from the Version 4.2 library SYSEXT.

But the preferred way is to remove all user application programming interfaces on the FUSER system file and copy the used user application programming interfaces from library SYSEXT to library system of the FNAT system file or use a SYS library on FNAT as steplib.

### Using a New FUSER File for Natural Version 4.2

If you want to port existing applications to a new FUSER system file, copy all application objects but no Software AG USR\* objects to the new FUSER system file. Then proceed as described in the scenario above.

## Migration

The FIND function of the Natural utility SYSMAIN can be used to search for all USR\* modules stored in a specific library on the FUSER system file or across the whole system file. In addition, Predict cross reference data can be used to determine all referenced user application programming interfaces.

The file number *fuser* of the FUSER system file can be chosen as described under Natural profile parameter FUSER in the Natural *Parameter Reference* documentation.

### Step 6: Load the Scratch-Pad File

- (Job I050, Step 0102)

The scratch-pad file (which is a Natural-internal system file) can be used exclusively by the new Natural version or it can be shared by different versions of Natural.

If you do *not* want to use a scratch-pad file, skip this step.

If you do want to use a scratch-pad file; that is, if you want to use read-only system files (profile parameter ROSY=ON), see also *Natural Scratch-Pad File* in the Natural *Operations* documentation, proceed as follows:

Load the empty scratch-pad file contained in dataset NATvrs . SYSF, using the ADALOD utility as described below.

The following ADALOD parameter *must not* be altered:

```
ISNREUSE=YES
```

For the optional scratch-pad file inclusion, the following NATPARM parameters must be added or, if already present, updated with:

```
LFILE=(212,dbid,fnr)
ROSY=ON
```

**If you use SMA:** To be able to use a read-only system file, you have to set the parameter NAT-SCRF to Y and ROSY to ON.

### Step 7: Load the FDIC System File

- (Job I050, Step 0103)

Skip this step:

- if you want to install Predict (in this case, use the corresponding installation step in the Predict *Installation* documentation), or
- if you want to use an existing FDIC system file (an existing FDIC system file can be shared by Natural Versions 4.1 and 4.2), or
- if you do not use your own FDIC system file.

Load the empty FDIC system file contained in dataset `NATvrs.SYSF` using the ADALOD utility, as described below.

The following ADALOD parameters *must not* be altered:

```
ISNREUSE=YES
```

The file number *fdic* of the FDIC system file can be chosen as described under Natural profile parameter `FDIC` in the Natural *Parameter Reference* documentation.

### Step 8: Load the FSEC System File

- Skip this step,
  - if you do not use Natural Security, or
  - if you want to use an existing FSEC system file, or
  - if you do not want to use an own FSEC system file.

**If you use Natural Security:** Refer to *Installing Natural Security*.

### Step 9: Assemble the Natural z/OS Interface Module

- (Job I055, Step 0100 or 0103)

The source program NATOS contains a call to the macro `NTOS` which generates the Natural z/OS interface.

- Job I055, Step 0100, do the `IEBUPDATE`.
- Job I055, Step 0103, assemble and link NATOS.

Set the parameters in the source of the module NATOS to meet your requirements.

For a description of the Natural for z/OS generation parameters contained in the macro `NTOS`, refer to *NTOS Macro - Generation Parameters for Natural under z/OS* in the *Natural Operations* documentation.

Assemble and link the Natural z/OS interface module NATOS contained in the dataset `hilev.NATvrs.SRCE`.

### Step 10: Create the Natural Configuration Module

- (Job I055, Step 0110)

This step is only required if you need to change the delivered NATCONFIG module, for example, to adapt the `NTDVCE` macro definition to your requirements.

Change and assemble the source contained in the dataset `hilev.NATvrs.SRCE`.

Link the resulting Natural configuration module (NATCONFIG) to the Natural nucleus when you link the Natural nucleus (see below).

For more information on the configuration tables in NATCONFIG, refer to *Natural Configuration Tables* in the *Natural Operations* documentation.

## Step 11: Create the Parameter Module

- (Job I060, Steps 0010, 0015)

Create the batch Natural parameter module.

The following parameters in the parameter module must be modified for the installation:

```
FNAT=(dbid,fnat)  
FUSER=(dbid,fuser)
```

For *dbid*, *fnat* and *fuser*, use the values you specified when loading the system files (see above).

**Global Natural Buffer Pool:** If you wish to use a *global* Natural buffer pool, specify the parameter macro NTBPI with the name of the global Natural buffer pool and set the profile parameter SUBSID in all your Natural parameter modules.

**If you use SMA:** Define the name of the global Natural buffer pool in SMA parameter NAT-GLOBAL-BP.

**For all other parameters:** You can generally use the default values. Modify only the values of those parameters whose default values do not meet your requirements.

For a description of the individual parameters contained in the parameter module, refer to the *Parameter Reference* overview in the *Natural Parameter Reference* documentation.

Assemble and link the parameter module.

## Step 12: Link the Natural Nucleus

When linking the Natural nucleus, you have the following alternatives:

Link a batch front-end (Job I060, Step 0020) and link a shared nucleus (Job I060, Step 0105), or link a non-shared nucleus (Job I060, Step 0020).

- 

### Using Alternative 1

1. Link a batch front-end (Job I060, Step 0020)

Do not link the batch front-end with the linkage editor option RENT.

With the INCLUDE instruction for the parameter module, specify the name of the Natural parameter module you have created before.

The following modules must be included (include module NATOS first):

Module	Function
NATOS	Batch Natural driver
NATWKFO	Work file support
PR001B	Generated parameter module
ADAUSER	Adabas link module

To access the shared nucleus, ensure that the NATPARM parameter NUCNAME contains the name of the module linked in Job I060, Step 0105.

## 2. Link a shared nucleus (Job I060, Step 0105)

For a list of the modules included, see *Natural Shared Nucleus under z/OS and z/VSE* in the *Natural Operations* documentation.

If IBM error IEW2641S is returned when linking the shared nucleus, link the shared nucleus into a PDSE instead of a PDS.

Or:

### Using Alternative 2

Link a non-shared nucleus (Job I060, Step 0020)

Do not link the non-shared nucleus with the linkage editor option RENT.

#### **If you use SMA:**

Ensure that SMA parameter SHARED-NUC is set to N (no). All the modules are then automatically linked in Step 0020.

#### **If you do not use SMA:**

Merge all INCLUDE statements and corresponding DD cards from Job I060, Step 0105 (shared nucleus) into Job I060, Step 0020 (front-end).

Link the executable Natural nucleus.

If IBM error IEW2641S is returned when linking the non-shared nucleus, link the non-shared nucleus into a PDSE instead of a PDS.

## Step 13: Delete Natural System Objects

- This step is optional but recommended to avoid data inconsistencies.

If you are using a Version 4.1 Natural FNAT system file, you can delete obsolete Version 4.1 Natural objects.

**If you are using SMA:** Set the SMA parameter NAT-FNAT41 to Y (yes).

#### **If only base Natural Version 4.1 is installed**

Delete the Version 4.1 Natural objects by loading the NATVRS.LDEL data set with the Natural INPL utility.

(Job I061, Step 0010)

#### **If Natural for DB2 Version 4.1 is installed:**

Delete the Version 4.2 Natural for DB2 objects by loading the `NDBvrs.LDEL` data set with the Natural `INPL` utility.

(Job I061, Step 0016)

See also *Delete Natural for DB2 Objects* in *Installing Natural for DB2*.

#### **If Natural Review Version 4.1 is installed**

Delete the Version 4.1 Natural Review objects by loading the `RNMvrs.LDEL` data set with the `INPL` utility.

(Job I061, Step 0026)

See also *Delete Natural Review Objects* in the *Natural Review* documentation.

#### **If Natural Security Version 4.1 is installed**

Delete the Version 4.1 Natural Security objects by loading the `NSCvrs.LDEL` data set with the `INPL` utility.

(Job I061, Step 0099)

See also *Delete Natural Security Objects* in *Installing Natural Security*.

### **Step 14: Load the System Programs**

- (Job I061, Step 0100)

Use the Natural `INPL` utility to load the Natural system objects (dataset `NATvrs.INPL`) into the Natural system files.

### **Step 15: Load the Error Messages**

- (Job I061, Step 0102)

Load the English Natural error messages file (dataset `NATvrs.ERRN`) using the program `ERRLODUS`. In addition to the English error message short and long texts, error message short texts in German language (`ULANG=2`) are loaded. Use the program `ERRUPPER` to convert the error message texts to upper case. Both programs are described in the Natural *SYSERR Utility* documentation.

#### **Load the Japanese Error Message Long Texts (dataset `NCJvrs.INPL`)**

(Job I061, Step 8300)

This step is only required if you wish to replace the English error message long texts with their Japanese equivalents.

The Natural error message long texts in Japanese language are contained in the Natural Japanese Language Pack. This is a separate product (product code NCJ) that can be loaded optionally. If you do not load the Natural error message long texts in Japanese language, English error message long texts will appear.

Use the Natural utility `INPL` to load the Japanese error message long texts (dataset `NCJvrs.INPL`) into the Natural system files.

### **Load the Japanese Error Message Short Texts (dataset `NCJvrs.ERRN`)**

(Job I061, Step 8302)

This step is only required if you wish to load the error message short texts in Japanese language (`ULANG=59`).

The Natural error message short texts in Japanese language are contained in the Natural Japanese Language Pack. This is a separate product (product code NCJ) that can be loaded optionally. If you do not load the Natural error message short texts in Japanese language, English error message short texts will appear.

Use the program `ERRLODUS` described in the Natural *SYSERR Utility* documentation to load the error message short texts (dataset `NCJvrs.ERRN`) into the Natural system file.

### **Step 16: Load the Examples**

- (Job I061, Step 0103)

Use the Natural utility `INPL` to load the Natural example objects (dataset `NATvrs.EXPL`) into the Natural system file.

### **Step 17: Create and Format the Roll File**

- (Job I200, Step 0101)

This step is only required if you wish to use the Natural Roll Server.

#### **Note:**

If you plan to use an existing Roll File of a previous version, it is sufficient to execute the `NATRSRFI RESET` function. See *Natural Roll Server Operation* in the *Natural Operations* documentation.

Create and start the job `FORMRF1` before using Natural.

For further information on different types of roll files, see *Natural under CICS* and *Natural under IMS TM* in the *Natural TP Monitor Interfaces* documentation.

### **Step 18: Create and Start the Roll Server**

- (Job I200, Step 0102)

This step is only required if you wish to use the Natural Roll Server.

Create and start the job ROLLSV1 before using Natural.

For further information on the Natural Roll Server, see *Natural Roll Server Operation* in the *Natural Operations* documentation.

### Step 19: Create and Start the Authorized Services Manager

- (Job I200, Step 0103)

This step is only required if you wish to use the Natural Authorized Services Manager.

Create and start the job AUTHSV1 before using Natural.

For further information, see *Authorized Services Manager* in the *Natural Operations* documentation.

### Step 20: Create Sample JCL for Natural RPC Server

- (Job I200, Steps 0108, 0109, 0115, 0120)

Sample Natural RPC server.

Step 0108, create the sample JCL to execute a Natural RPC server including the network task.

Step 0109, create the sample JCL to execute a Natural RPC server with TCP/IP task.

Step 0115, create the sample JCL to execute a standard Natural RPC server task without RPC server front-end.

Step 0120, create the sample JCL to execute a Natural RPC server task by the RPC server front-end. This JCL is necessary for impersonation.

**If you want to use Natural RPC:** Set the parameters in the SMA group RPC accordingly; in particular, set the parameter NAT-RPC to Y (Yes).

For further information, see *Starting a Natural RPC Server* and *Starting a Batch Server in a Mainframe Environment* in the *Natural Remote Procedure Call (RPC)* documentation.

## Installation Verification for Natural under z/OS

For base Natural, there are no specific installation verification procedures.

After the last step of the installation procedure has been successfully performed, check that the following results are available:

- Communication between Adabas and Natural is working.
- The Natural system files have been loaded.
- Batch Natural is operational.